What is claimed is:

1. A method for estimating a location of a moving object in a navigation system, comprising the steps of:

(a) receiving GPS location data from a moving object;

(b) determining GPS shadow area by using the received GPS location data;

(c) calculating a moving straight distance of the moving object with reference to a last GPS location data in visible regions when the moving object is in a GPS shadow area;

(d) calculating a virtual location data by using the calculated moving straight distance of the moving object; and

(e) calculating an estimated location on a digital numeric map positioned nearest from the virtual location data, and performing a map-matching to provide a navigation service.

2. The method according to claim 1, wherein the step (b) comprises the steps of:

(b-1) calculating an identifying value on reliability of GPS location data by using GPS location data from a plurality of GPS satellite

(b-2) comparing the calculated identifying value with a set value; and

(b-3) if the identifying value is greater than or equal to the set value, determining that the location of the moving object

is in the shadow area, and if the identifying value is less than the set value, determining that the location of the moving object is in the visible region when.

3. The method according to claim 2, wherein in the step (b-1), the identifying value of the reliability of the GPS location data is a horizontal dilution of precision (HDOP).

4. The method according to claim 2, wherein in the step (b-3), the location of the moving object is estimated using the GPS location data or dead reckoning technique when the location of the moving object is determined to be in the visible region by using GPS location data.

5. The method according to claim 1, wherein in the step (e), the virtual location data is calculated using a reference point of any one of the last GPS location data in the GPS visible region and the estimated location data of the moving object in the shadow area, moving straight distance, due north reference angle between the moving straight line and link.

6. The method according to claim 1, wherein in the step (e), coordinates (longitude, latitude) of the virtual location data are obtained by:

longitude = longitude of previous map-matching location + speed of the moving object * cos(attitude angle of previous map-matching location) * time (sec), and

latitude = latitude of previous map-matching location + speed of the moving object * sin(attitude angle of previous map-matching location) * time (sec).

7. The method according to claim 5, wherein the due north reference angle of the link is a link due north reference angle positioned on extended of traveling direction with reference to the previous map-matching location data of GPS location data.

8. The method according to claim 5, further comprising the step of:

(f) after the step (e), if estimated location of the moving object is map-matching onto the digital numeric map, obtaining next virtual location data of the moving object by using moving straight distance of the moving object and due north reference angle of the corresponding link with reference to the map-matching location, and calculating next estimated location by map-matching the next virtual location data onto shortest distance of the digital numeric map.

9. A method for estimating a location of a moving object

in a navigation system, comprising the steps of:

(a) receiving GPS location data;

(b) determining GPS shadow area by using the received GPS location data;

(c) obtaining a map-matching value of a last GPS location data in visible regions when the moving object is in a GPS shadow area, and calculating moving straight distance of the moving object with reference to the map-matching value;

(d) detecting interpolated points and link of location estimated using the calculated moving straight distance of the moving object;

(e) ascertaining whether the moving object is on the detected link; and

(f) estimating a moving location by using distance of the link, coordinates of the interpolated point, speed of the moving object and length of the link if the moving object is on the detected link.

10. The method according to claim 9, wherein in the step (d), the link in traveling direction and the interpolated points connected to the link are detected on a digital numeric map by using moving straight distance calculated using speed and time of the moving object and previous last map-matching location data

11. The method according to claim 9, wherein the step (e) comprises the steps of:

(e-1) calculating residue distance of link by using distance to next interpolated points from the last map-matching reference;

(e-2) comparing the residue distance of the link with moving distance of the moving object if the residue distance of the link is calculated, determining that the moving object is on the corresponding link if the residue distance of the link is greater than or equal to the moving distance of the moving object, and determining that the moving object is on another link if the moving distance of the moving object is greater than the residue distance of the link; and

(e-3) if the moving object is on another link, subtracting the residue distance of the link from the moving straight distance of the moving object, comparing the subtracted residue moving straight distance with distance of another link, determining whether the moving object is on another link.

12. The method according to claim 9, wherein a next location of the moving object in the shadow area is estimated using moving straight distance (or residue moving straight distance) of the moving object, coordinates of interpolated points connecting the link on the digital numeric map, length of the link, and due north reference angle of the link.

13. The method according to claim 12, wherein the location data in the shadow area are obtained by:

longitude = longitude of previous interpolated point + speed of the moving object * cos(estimated direction of the link) * time (sec), and

latitude = latitude of previous interpolated point + speed of the moving object * sin(estimated direction of the link) * time (sec),

where, the estimated direction of the link is the due north reference angle of the link.

14. The method according to claim 12, wherein the location data (longitude, latitude) of the moving object in the shadow area can be calculated using speed and time of the moving object, estimated direction of the link, coordinates (longitude, latitude) of post interpolated point.